CORRESPONDENCE/MEMORANDUM **State of Wisconsin**

DATE: February 27, 1995

TO: Permit Section, Plan Review Unit, District Air Leaders, Mary Oleson-SD/Air, Carol Crawford-LMD/Air, Craig Stemler-Wisconsin Rapids Area Office, Imelda Stamm--LMD/Air, Judy Hayduscko-Cumberland Area Office, Robin Capen-NCD/Air, Rhonda O'Leary-Wausau Area Office, Brad Erickson-La Crosse Area Office, Phyliss Holmbeck - Superior Area Office, Mehrdad Moghimi-WD/Air, Gerry Bevington-SED/Air, Eric Donaldson-SED/Air, Dan Hellenberg-SED/Air, Paul Johnson-SED/Air, Dennis Antonie - SED/Air, and Jeff Burger-SED/Air

FROM: Dale Ziege - AM/7

SUBJECT: LACT Analyses under s. NR 424.03(2)(b)

There have been several requests to define the procedures used to determine the applicable requirements under s. NR 424.03(2)(b); this memo will attempt to clarify this issue. Note that s. NR 424.03(2)(b) applies to sources constructed or last modified after August 1, 1979. Also, the requirements of this chapter apply to organic compound emissions except those compounds exempted under s. NR 425.04(1)(b), Wis. Adm. Code.

What is typically referred to as a "LACT analysis" is actually a two step review. First is the determination of whether 85% control of organic compounds is "technologically infeasible". Technological infeasibility is defined as "incapable of being accomplished or carried out as a mal:ter of practicality". If 85% control is determined to be infeasible, then step two is to determine LACT for the proposed process line.

STEP 1: 85 % CONTROL:

Each review of the feasibility of 85% control is a case-by-case determination so there is no one definitive procedure to follow. It is important to note that while the cost of control ($/ton) may be a key factor in the determination of "practicality" of 85% control, cost is not the only factor. Typical approaches used are as follows:

1. If the potential to emit (PTE) is "low" (25 TPY or less) and the exhaust flow rate to be controlled is "high" (about 12,000 acfm or more, usually due OSHA requirements intended to protect human operators) then engineering judgement can be used by the reviewer to presume that 85% control is infeasible. Based on previous reviews it is clear that add-on controls are not practical for this type of situation so no cost data is needed for the review. Other factors to be considered in the determination of feasibility for this situation include (but are not limited to) the hazardous air pollutants, both NR 445 and 112(b), odor complaints in the area, controls in place or operating practices used at similar facilities, etc. These "other considerations" may trigger a more extensive review.

2. If the potential to emit (PTE) is between 25 TPY and 100 TPY then the cost of add-on controls should be provided by the applicant and a cost per ton controlled value calculated. If the cost of control is less than $2000/ton, then the control is generally considered feasible. Above $2,000/ton, feasibility is a case-by-case decision based on the other considerations described above.

Example:

A job shop has actual emissions of 15 TPY, but a PTE of 99 TPY due to the difficulties involved with capping PTE. In this case, controls with a dollar per ton value around $2000 may be considered infeasible for this source. For a facility with actual emissions of 80 TPY and a PTE of 99 TPY, and a history of odor complaints, controls costing out at around $2500/ton may be considered feasible.

Note that this example is just included as a general example of how the cost per ton value may vary.

3. If the PTE is over 100 TPY and the cost of controls is less than $3000/ton then 85% control is generally considered feasible. If the cost exceeds $3,000/ton, then the decision is case-bycase based on the other considerations.

Two important notes on the use of PTE:

1) A permittee can request, for example, raw material usage restrictions to limit their PTE. These restrictions are requested by the company not imposed by the Department.

2) PTE is used instead of actual emissions in the cost per ton calculation because actual emissions may vary from year to year. This variation could have a large influence on the review of the feasibility of 85% control. The PTE is established by enforceable conditions; if a permittee wants to increase their PTE another feasibility review must be done.

Technical notes for 85% reviews:

1. Remember to consider capture efficiency (where appropriate) when determining 85% overall control.

2. When the cost of control equipment is submitted by the applicant we must always verify the figures. Approximate capital cost and operating costs can usually be **obtained from equipment vendors** in units of $/scfm and $/scfm/year respectively. Similar cost information for some control devices can also be obtained from EPA's OAQPS Cost Control Manual (EPA 450/3-90-006). The cost values should be used with EPA's capital recovery factor or CRF procedure to determine annualized costs.

-From pg. 2-13 of the Cost Control Manual:

$$CRF = \frac{0.1\ (1.1)^{n}}{(1.1)^{n} - 1}$$

where n = life of the control equipment

(Note that EPA has always used an interest rate of 10%. This value is not really an interest rate but reflects a cost of capital, or hurdle rate for a project.)

The annualized cost = CRF X capital cost + annual operating costs [=] $/year

3. The appropriate values for the cost/ton calculations are the PTE and the maximum **exhaust flow** rates. The maximum rates are used because the control system has to be sized to handle the design flow rate.

4. With incinerators, in some situations the cost of natural gas alone may result in a very large $/ton value. In this case, the capital cost and other operating costs of the control equipment does not have to be provided by the applicant. Make sure that the applicant uses the appropriate price of fuel. In the past, some applicants have tried to use "standard" natural gas prices that are 3 to 5 **times higher** than typical rates in Wisconsin.

5. Techniques to minimize exhaust flow rates (which reduces the cost of control) should be considered prior to determining costs.

STEP #2: LACT:

If 85% control is determined to be infeasible then the source is required to use the latest available control techniques and operating practices that demonstrate best current technology. This requirement should be used to prompt the applicant to evaluate pollution prevention techniques such as high transfer efficiency application systems, waterbased coatings, powder coatings, low solvent coatings, UV coatings, etc. It is the applicant's responsibility to demonstrate the feasibility or infeasibility of these techniques. When analyzing the submittal the reviewer should consider the control techniques and operating practices used by similar facilities (especially competitors). The reviewer should also consider previous LACT determinations for similar facilities done in the State. If the reviewer is not familiar with those determinations, he or she should contact someone in the Permits or Compliance Section to see what has been done in the past for that type of facility. Remember that any LACT chosen must have an associated compliance demonstration method.

In some reviews, some or all of the pollution prevention techniques are not feasible based on the quality specifications of the final product. If a technique is technically feasible, a review similar to the cost analysis described above should be done to determine the feasibility of the control technique.

Technical notes for LACT:

1. Limiting the PTE is not LACT, but conditions that establish the PTE should be included in the permit with the note that the conditions are included to document the emission rate used to determine the infeasibility of 85% control.

2. Remember that this second step is a case-by-case analysis, just like Step 1.

3. S. NR 424.03(3) allows a printer or coater to **elect** to meet RACT as **a method to comply with ch.** NR 424. If this election is made then Steps #1 and #2 are not necessary. Note that this election means the applicant is electing to meet a RACT for which they meet the applicability. For example, a small paper coating operation that is not subject to RACT may elect to meet the paper coating RACT, but may not elect to meet the solvent content RACT level of the miscellaneous metal parts RACT.